AUTOMATIC IDENTIFICATION TECHNOLOGY

J-6 Information Operations

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Right Item, Right Time, Right Place, Every Time...Best Value Solutions for America's Warfighter
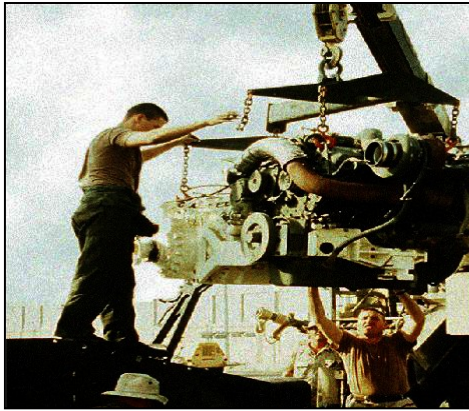
- **Background**
  - **AIT Definition**
  - **AIT Suite**
  - **Mission of DOD AIT Office**
- **RFID**
  - **Types**
  - **DOD RFID Policy**
    - **Active RFID**
    - **Passive RFID**
    - **Next Steps**

RFID is part of the AIT toolbox

What is AIT?

A suite of technologies enabling the automatic capture of source data, thereby enhancing the ability to identify, track document, and control material, maintenance processes, deploying and redeploying forces, equipment, personnel, and sustainment cargo.
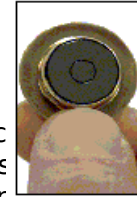
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AIT Media / Devices

Linear Bar Code

The vertical black lines and white spaces printed on an item, label, or document. Linear bar codes normally store 17-20 alphanumeric characters and are used in retail stores to identify items that can be referenced to price and other inventory data. Bar code read error rate is extremely low (1 in 3.4 million).

CMB
Contact Memory Button

A compact device the size of a watch battery, a *contact memory button* is something like a floppy disk in a can. CMBs cost 600 times more than bar codes but can store up to 64 Kilobytes of information, and will survive most types of environmental damage. Contact buttons are especially useful in applications where space is limited and access to current data is critical.

2D Symbol

The inkblot on your military ID card is an example. 2D symbols carry 100 times (about 1500 characters) more data than a linear bar code and are readable even when part of it has been damaged. The error rate for the 2D symbol is 1 in 7.1 million reads.

STS
Satellite-Tracking Systems

Although not considered AIT, STS can be combined with AIT to create a powerful information management system. STS can track--in near real-time--the location of vehicles and convoys by GPS (Global Positioning Satellite), 2-way key-entry data, or both. Although the most expensive of the AIT family, STS has been credited with saving the lives of soldiers in places like the Balkans and by providing emergency communication when normal communication means failed to function.

AIT Media / Devices

OMC
Optical Memory Card
Uses the same basic technology as a CD-ROM. The OMC is the size of a credit card, can store up to 2.4 MB of useable data, and is disposable. It uses WORM (Write Once Read Many) technology. Because the device cannot be erased, this feature provides a permanent audit trail for recorded data. It withstands harsh environments and is relatively inexpensive

Smart Card/CAC
Previously known as Integrated Circuit Card, the Smart Card is about the size of a credit card. It is embedded with an electronic chip that can store 8 to32 Kilobytes of data. It can also contain other AIT media, like magnetic strips or bar codes. DoD uses smart cards for personnel functions like controlled access to buildings or personnel manifesting. A spin-off of smart card technology is the *Common Access Card* (CAC) that is currently being implemented throughout DoD as a common ID card.

RFID - Active
Radio Frequency ID

RFID can remotely identify, categorize, and locate materiel automatically (i.e., without human intervention). When used in conjunction with hand-held interrogators, RFID tags provide "in the box" visibility to the Army. Data are digitally stored on RFID tags (radio transceivers with memory units). Data capacity of the tag is up to 128 Kilobytes and information can be retrieved from distances of up to 300 feet away using strategically placed electronic *interrogators* to identify their exact location and relay the data via wired or wireless technology. Supporting infrastructure is expensive to install and maintain.

RFID- Passive
Radio Frequency ID

Small passive tags are used in clothing stores to assist in detecting shoplifters. Tag capacity is up to 20 Bytes of information. This tag differs from active tags by requiring external activation which generates sufficient power to transmit a return signal. This capability is far less expensive than the active tag but has a short read range and data capacity is small.

Principals

DUSD (L&MR)
JS-J4
Director, DLA
DCINC, TRANSCOM
DUSD (AS&C)

DISA
DARPA
Army
Navy
Air Force
Marines

Mission

DUSD(L&MR) & JS-J4 tasked DLA to:

*Promote, manage, coordinate, and document the application of DoD and Joint Logistics AIT technologies, and processes in support of the Warfighter*

Scope

- Operate as a joint organization
- Administratively supported by DLA
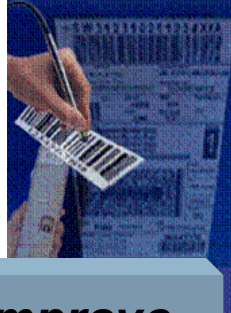- Guidance provided by DUSD(L&MR), JS-J4 and AIT Principals

Improve Support to the Warfighter

Facilitate Source Data Collection

Reduce Logistics Processing Times
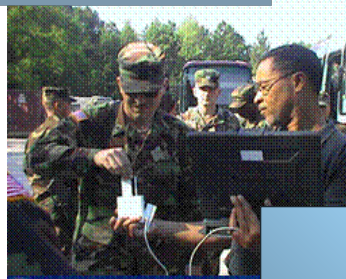
Objectives

Improve Data Accuracy

Enhance Asset Visibility

Current Focus: Support USD (AT&L) Requirement for DOD RFID Policy

- **Active RFID - Longer range**
  - **Continuously powered tag**
  - **Low-level RF to the tag**   *"Data Rich"*
  - **High-level RF back to the reader**
- **Passive RFID – Shorter range**
  - **Tags reflect energy from reader**
  - **Tag receives/stores energy to respond** *"License Plate"*
  - **Needs stronger RF signal from reader** *(Requires link to*
  - **Low RF strength from tag**   *data base)*
- **Semi-Passive RFID**
  - **Similar to passive**
  - **Internal power (battery) for tag circuitry**
  - **Other functions; may extend range**

How Far – How Fast – How Many – How Much

➢**Support Warfighter require**

- ▪ **Expand *active* RFID beyond "Islands of Capability" for ITV**
- ▪ **Published business rules for *immediate* implementation**

➢ **Streamline the Supply Chain . . .**

- ▪ **Implement *passive* RFID with commercial**

Established January 2005 for implementation of passive RFID

technology

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RFID - Support Warfighter Requirements

- **Immediately implement active RFID in support of Combatant Commander ITV requirements**
    - **Put RFID tags on:**
        - **Consolidated sustainment/ammunition containers and air pallets**
        - **Unit movement equipment**
        - **Prepositioned materiel and supplies**
    - **Send RFID tag data to ITV servers IAW data timeliness guidelines**
    - **Establish RFID infrastructure to support core business processes**
    - **Program and budget (O&M or DWCF/TWCF) for RFID operations**
    - **DLA Management of Active Tags**
    - **Army (PM-AIT) Management of Joint ITV servers**

- **Enhance Asset Visibility, even in austere environments**
    - **Reduce Logistics Footprint**
        - **Hands-Off Data Capture**
            - **Improve Force Tracking**
                - **Optimize**

Supports COCOM Directive Authority For Logistics
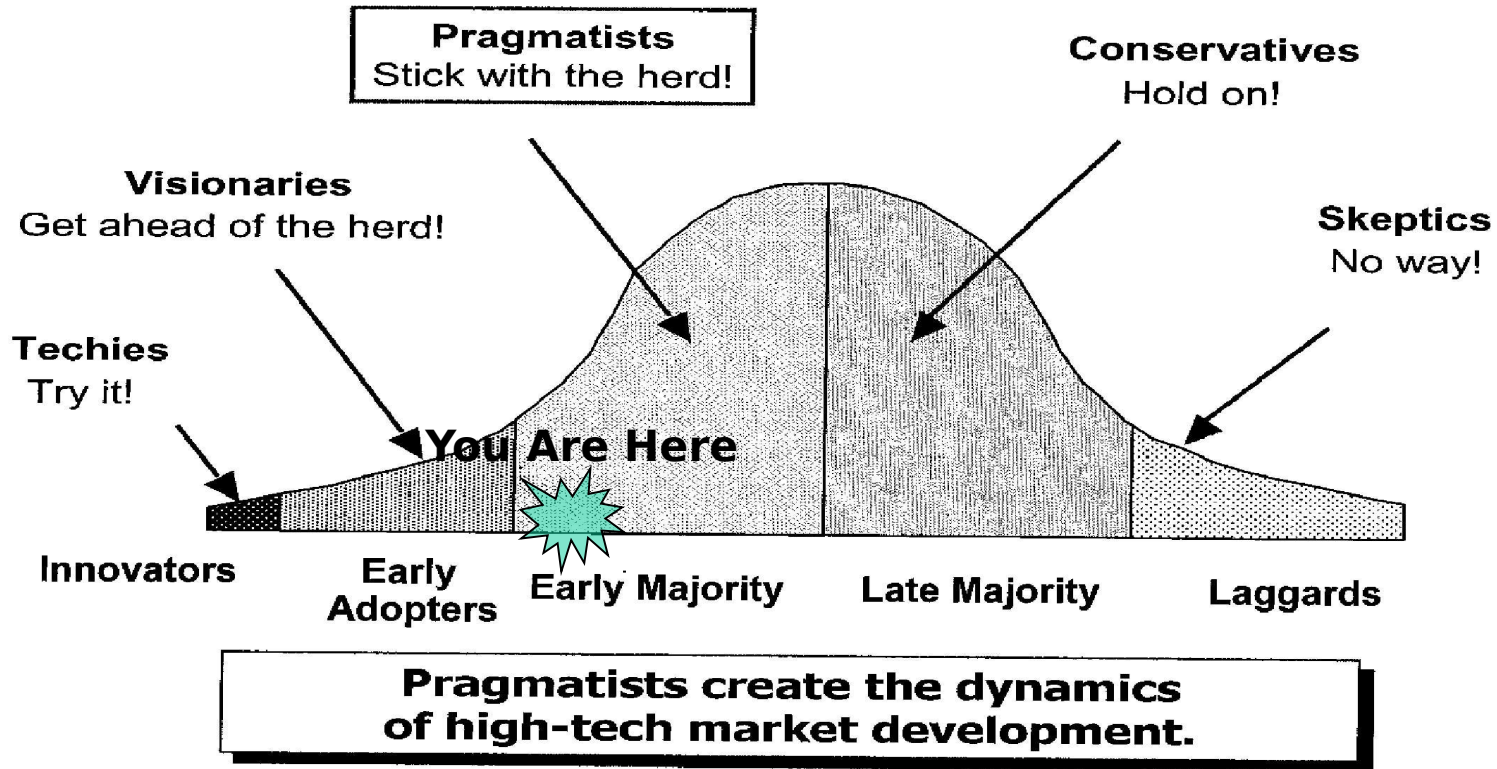
RFID - Optimize the Supply Chain

- **DOD will be an early adopter of passive RFID technology**
  - Implement passive RFID Business Rules - 1 Jan 05
    - Passive tagging of materiel shipped to DOD
      - Case/warehouse pallet
      - UID packaging
    - Initial DOD capability to read passive RFID tags and use data
  - Publish DFARS Rule requiring application of passive RFID – May 04
    - Solicitations issued after 1 OCT 04 for delivery after 1 Jan 05
  - Integrate RFID data into the DOD Business Enterprise Architecture
  - Establish multi-vendor contract mechanism for EPC compliant technology

- •Hands-Off Data Capture
    - •Improve Data Accuracy
      - • Improve Logistics Processing Time
        - • Improve Manpower Utilization

Reduced Total Ownership Costs

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Pragmatists
Stick with the herd!

Conservatives
Hold on!

Visionaries
Get ahead of the herd!

Skeptics
No way!

Techies
Try it!

You Are Here

Innovators   Early Adopters   Early Majority   Late Majority   Laggards

Pragmatists create the dynamics of high-tech market development.

Source – Geoffrey Moore, The Chasm Group

"Our task is to get people from where they are to where they have not been"
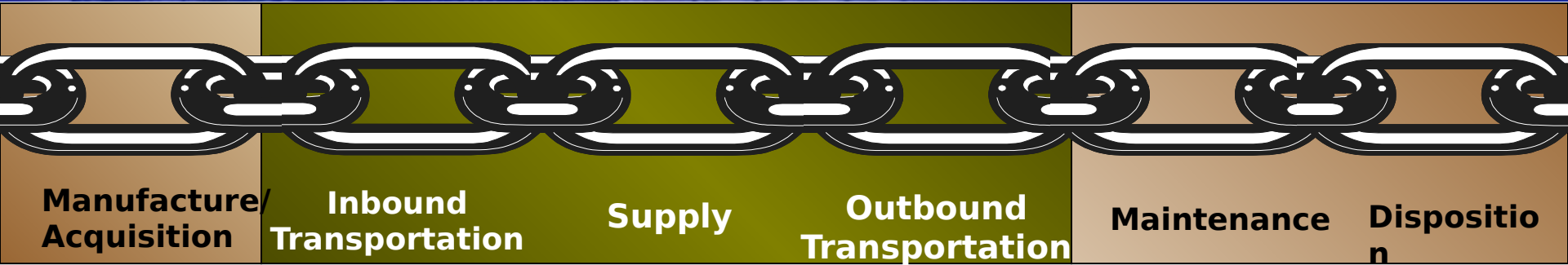Henry Kissinger

DOD Next Steps

- **Finalize requirements for use of EPC – Mar 04**

- **Finalize passive RFID technical specifications – Mar 04**

- **Identify Budget requirements – Mar 04**

- **Conduct second RFID Industry Forum – Apr 04**

- **Publish revised RFID Policy – Apr 04**

- **Publish proposed DFARS Rule for passive RFID – May 04**

- **Complete analysis of RFID pilots – Jun 04**

- **Publish Final RFID Policy – Jul 04**

- **Implement passive RFID technology contract vehicle – Au 04**

- **Develop education and training plan – Sep 04**

- **Issue final DFARS Rule – Sep04**

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SUMMARY

Manufacture/ Acquisition	Inbound Transportation	Supply	Outbound Transportation	Maintenance	Dispositio n

- ## Move out with active RFID
  - **Supports the Warfighter**
  - **Expands "islands of capability" for ITV**

- ## Become early adopter of passive RFID
  - **Optimizes the Supply Chain**
  - **Supports the UID data structure**
  - **Stress open architecture/vendor**

RFID is critical to Logistics

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Questions?